

I CLAIM:

1. A chuck assembly comprising:

a housing that defines a cylindrical inner space therein and that is formed with a hydraulic fluid inlet adapted to be connected to a hydraulic fluid supply;

a sleeve that is co-axially mounted in said inner space, that is secured to said housing, that defines a shaft-receiving space therein, and that is formed with an annular groove in fluid communication with said hydraulic fluid inlet;

a hollow shaft that co-axially and rotatably extends through said shaft-receiving space, that defines a chuck-receiving space therein, that is rotatable relative to said sleeve about an axis, and that is formed with a first fluid passage in fluid communication with said annular groove;

a chuck unit that is co-axially mounted in said chuck-receiving space, that includes a plurality of angularly displaced jaws, and that cooperates with said shaft to define a piston-receiving chamber therebetween;

a piston that is co-axially mounted in said piston-receiving chamber, that subdivides said piston-receiving chamber into first and second compartments, that is displaceable in an axial direction relative to said axis, and that is connected

to said chuck unit in such a manner that axial displacement of said piston results in radial displacement of said jaws, said first compartment being in fluid communication with said first fluid
5 passage; and

an annular elastic sealing member that is received in said annular groove, that is sleeved on said shaft, and that is formed with a second fluid passage in fluid communication with said first fluid
10 passage so as to permit flow of hydraulic fluid from the hydraulic fluid supply to said first compartment.

2. The chuck assembly of Claim 1, wherein said sealing member has inner and outer sides that are opposite to each other in a radial direction relative to said
15 axis, and first and second sides that are opposite to each other in said axial direction, each of said inner and outer sides and said first and second sides having two opposite end portions and a middle portion that extends between said end portions and that is
20 indented inwardly to form a recess so as to permit deformation of said sealing member in a manner that said end portions of said inner side of said sealing member abut against said shaft when the hydraulic fluid flows through said second fluid passage,
25 thereby preventing entry of the hydraulic fluid into a clearance formed between said sleeve and said shaft.

3. The chuck assembly of Claim 2, wherein said sleeve

is further formed with an oil channel that is in fluid communication with said annular groove in said sleeve and said hydraulic fluid inlet in said housing.

4. The chuck assembly of Claim 2, further comprising
5 an urging member that is mounted in said second compartment and that abuts against said piston so as to accumulate a restoring force when the hydraulic fluid enters into said first compartment and moves said piston to compress said urging member.

10 5. The chuck assembly of Claim 2, wherein said housing is further formed with an air inlet that is adapted to be connected to an air supply, said sleeve being formed with an air channel that is in fluid communication with said air inlet in said housing and
15 said annular groove in said sleeve.

6. The chuck assembly of Claim 3, wherein said housing is further formed with an oil outlet that is adapted to be connected to an oil collector, said sleeve being formed with a second oil channel that is in fluid
20 communication with said oil outlet in said housing and said annular groove in said sleeve.